

6.1.1.2 Gamma Spectroscopy

Gamma spectroscopy analysis was performed on all samples from the low-volume air-sampling network. The filters were composited by station on a quarterly basis after gross alpha/beta analysis. As in previous years, all samples were gamma spectrum negligible with respect to man-made radionuclides (i.e. gamma-emitting radionuclides were not detected). In most of the samples, naturally occurring ^7Be was detected above the analytical MDC. This radionuclide is produced by cosmic ray interaction with nitrogen in the atmosphere. The mean annual activity for ^7Be for the sampling network was $76.4 \pm 24.7 \times 10^{-15} \mu\text{Ci/mL}$.

6.1.2 TLD Results

TLDs measure ionizing radiation from all sources, including natural radioactivity from cosmic or terrestrial sources and from man-made radioactive sources. The TLDs are mounted in a plexiglass holder approximately one meter above the ground, and are exchanged quarterly. TLD results are not presented for Warm Springs Summit at this time since its access is limited in the winter months. This does not allow for a proper quarterly change of the TLD as required. The total annual exposure for 2004 ranged from 81 milliroentgens (mR) (0.81 millisieverts [Sv]) at Pahrump, Nevada, to 157 mR (1.57 mSv) at Twin Springs, Nevada, with a mean annual exposure of 119 mR (1.19 mSv) for all operating locations. Results are summarized in Table 6-3 and are consistent with previous years' data. Figure 6-5 shows the long-term trend for the CEMP stations as a whole.

Table 6-3. TLD monitoring results for the CEMP offsite Air Surveillance Network in 2004

Sampling Location	Number of Days	Daily Exposure (mR)			Total Annual Exposure (mR)
		Mean	Minimum	Maximum	
Alamo	364	0.32	0.29	0.34	115
Amargosa Valley	367	0.29	0.27	0.31	107
Beatty	364	0.40	0.35	0.43	145
Boulder City	368	0.29	0.27	0.31	106
Caliente	371	0.34	0.31	0.37	125
Cedar City	371	0.25	0.23	0.29	93
Delta	371	0.27	0.24	0.31	100
Ely	365	0.29	0.28	0.31	106
Garden Valley	372	0.37	0.34	0.38	135
Goldfield	364	0.37	0.35	0.38	135
Henderson	368	0.31	0.28	0.33	113
Indian Springs	367	0.27	0.25	0.29	98
Las Vegas	364	0.27	0.26	0.29	100
Medlin's Ranch	364	0.39	0.36	0.41	141
Milford	371	0.39	0.35	0.41	141
Nyala Ranch	364	0.31	0.30	0.32	114
Overton	369	0.26	0.23	0.29	93
Pahrump	367	0.22	0.20	0.25	81
Pioche	371	0.31	0.30	0.33	114
Rachel	364	0.38	0.36	0.40	140
Sarcobatus Flats	364	0.42	0.37	0.46	155
Stone Cabin Ranch	365	0.39	0.38	0.40	142
St. George	371	0.24	0.20	0.29	88
Tonopah	364	0.37	0.33	0.40	136
Twin Springs	365	0.43	0.41	0.47	157
Overall Annual Mean = 119 mR					